Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method of calculating traffic values in a communication network, the communications network comprising a plurality of nodes, the nodes being connected to one another by links, the method comprising:

(a) obtaining traffic data measurements through said nodes ~~and/~~or links in an initial scenario as input data;

(b) deriving a traffic flow model for a modified scenario using a plurality of constraints describing the interdependency of said initial to said modified scenario; and

(c) calculating values ~~and/~~or upper and lower bounds of traffic values for said modified scenario from said traffic flow model using said input data.

Claim 2 (currently amended): A method according to claim 1, wherein said modified scenario comprises one or more of: a modified network topology, modified routing algorithm parameters, modified traffic engineering constraints ~~and/~~or modified traffic load compared to the initial scenario.

Claim 3 (previously presented): A method according to claim 1, wherein said constraints are derived from the network topology and network behaviour of the initial network.

Claim 4 (previously presented): A method according to claim 1, wherein step (b) further comprises performing a routing procedure in said modified scenario.

Claim 5 (currently amended): A method according to claim 1, further comprising the step of verifying the consistency of the measured input data using information about the network topology ~~and/~~or the network behaviour of the initial scenario.

Claim 6 (previously presented): A method according to claim 1, wherein said input data are corrected if inconsistencies are detected.

Claim 7 (original): The method of claim 6, further comprising solving a linear programming problem with a linear objective function to minimize the data traffic reconciliation (error correction).

Claim 8 (original): The method of claim 6, further comprising solving a linear programming problem with a non-linear objective function to minimize the data traffic reconciliation (error correction).

Claim 9 (previously presented): A method according to claim 1, wherein in step (b) the traffic values in the modified scenario are expressed as a linear function of node-to-node flows in the initial scenario.

Claim 10 (previously presented): A method according to claim 1, wherein traffic values which are not affected by the modifications from said initial to said modified scenario are equal to the corresponding input data or corrected input data of the initial scenario.

Claim 11 (currently amended): A method according to claim 1, wherein said traffic values comprise utilization, overload, ~~and/~~or traffic volume values.

Claim 12 (previously presented): A method according to claim 1, wherein said constraints comprise linear constraints.

Claim 13 (previously presented): A method according to claim 1, wherein said constraints comprise non-linear constraints.

Claim 14 (original): A method according to claim 13, wherein a linear approximation to a non-linear constraint is used.

Claim 15 (previously presented): A method according to claim 1, further comprising:

selecting a first and a second node;

solving a first linear programming problem by computing the upper bound of traffic flow values from the first to the second node; and

solving a second linear programming problem by computing the lower bound of traffic flow values from the first to the second set of nodes.

Claim 16 (currently amended): The method of claim 1, further comprising repeating step (a) at different times ~~and/~~or at periodic intervals.

Claim 17 (currently amended): A method of calculating traffic values in a communications network, the communications networking comprising a plurality of nodes, the nodes being connected to one another by links, the method comprising:

(a) obtaining data traffic data measurements through said nodes ~~and/~~or links in an initial scenario as input data;

(b) considering a modified scenario;

(c) defining one or more solution variables for said modified scenario;

(d) determining constraints between traffic flows through said links and nodes to describe the network topology and behaviour of the network;

(e) deriving a traffic flow model using said input data and said relations for calculating said solution variables.

Claim 18 (original): A method according to claim 17, wherein step (b) further comprises performing a routing process for said modified scenario.

Claim 19 (previously presented): A method according to claim 17, wherein said solution variable can be expressed as a linear function of one or more node-to-node flows of said network.

Claim 20 (previously presented): The method of claim 17, wherein said constraints in step (b) include relations among data traffic rates based on the definition of network protocol (such as IP, TCP, UDP) which defines the network behaviour.

Claim 21 (previously presented): A method according to claim 17, wherein said constraints comprising any of the following constraints:

- routing-based constraints

- link-based constraints

- node-based constraints

- error-based constraints.

Claim 22 (previously presented): The method of claim 17, wherein said constraints relate to any of the following:

- the size of data packets used in the network;

- relationship between the number of data packets and the data traffic volume;

- constraints determined by the routing protocol used in the network;

- the relationship between incoming and outgoing data traffic at said plurality of nodes;

- the relationship between the data traffic at both ends of each link;

- the relationship between the data traffic along said routes and the data traffic input into and output from the network.

Claim 23 (previously presented): A method according to claim 17, further comprising repeating stages (b), (c) and (d) for different modifications of said network.

Claim 24 (original): A method according to claim 23, further comprising calculating a minimal and a maximal value for each solution variable taking into account one or more of said different modifications.

Claim 25 (previously presented): A method according to claim 23, further comprising calculating one consistent solution for all solution variables taking into account all said modifications.

Claim 26 (previously presented): An apparatus for calculating traffic values in a communications network, adapted to perform the method of claim 17.

Claim 27 (original): A network management system for managing a network comprising a plurality of nodes, the nodes being interconnected by links, the network management system comprising:

means for measuring the data traffic input into and output from nodes and links and the apparatus of claim 26.

Claim 28 (currently amended): A computer readable medium encoded with a computer program for calculating traffic values in a communication network, the communication network comprising a plurality of nodes connected to one another by links ~~performing the method of claim 1 when operated in a computer system~~, the computer program comprising:

code for obtaining traffic data measurements through said nodes or links in an initial scenario as input data;

code for deriving a traffic flow model for a modified scenario using a plurality of constraints describing the interdependency of said initial to said modified scenario; and

code for calculating values or upper and lower bounds of traffic values for said modified scenario from said traffic flow model using said input data.

Claim 29 (canceled).